RESPONSES TO EPA COMMENTS FOR DRAFT DETAILED ANALYSIS OF ALTERNATIVES REPORT SITE 06 - SOLVENT DISPOSAL AREA NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE, RI

GENERAL

These are responses to EPA's comments to the document entitled "Draft Detailed Analysis of Alternatives report Sites 6 and 13". EPA comments are contained in their letter dated 13 June 1994.

Comments pertaining to Site 06 are only addressed in this document. Since a removal action is scheduled for Site 13, comments pertaining to this site will be addressed later under a separate cover.

As suggested by EPA, ground water at these sites is designated as a new operable unit. Therefore, comments pertaining to ground water remediation at these sites will be addressed later under a separate cover. However, general information pertaining to ground water including flow direction, depth, and levels of contamination will be included in the DAA responses. Comments pertaining to this general information are addressed in this document.

General Comments

1. The description of the past investigations and site contamination presented in Section 2.0 is difficult to follow and leaves the reader questioning the relevance of some of the subsections. The section should be reviewed and updated with an effort to present the contamination at Site 06 in the context of the overall NCBC site. For example, Section 2.6 states that lead was found upgradient of the site and it is, therefore, concluded that lead is present across the entire site at background concentrations. This discussion, as currently written, is unclear because the text does not explain what the relationship is between Site 06 and the upgradient detection of lead. This concern is also related to the lack of information provided on background at the site. For Site 13, the relationship between PCB and pesticide contamination at other sites and Site 13 is unclear.

   In addition, Section 2.0 does not summarize the remedial investigation (RI) data in a way that makes it easy for the reader to quickly understand the concerns regarding the site. This could be corrected by presenting summary figures that indicate the extent of contamination in excess of the cleanup levels and the range of analytical results for each sampling point.

Response: *The FS presents a summary of data generated during the RI. In accordance with the RI and the Federal Facility Agreement, the investigation and evaluation of the*

former NCBC facility was conducted on a site-by-site basis. Where information is available to evaluate site conditions on a facility-wide basis, such an evaluation was conducted (e.g., the comparison of soil contaminants to background levels based on the collection and analysis of facility-wide background soil samples).

Since preliminary remediation goals are not discussed until Section 3.0, Section 2.0 is not an appropriate place to present contaminant levels in excess of cleanup levels.

2. The feasibility study (FS) screens out the use of soil removal as a general response early, due to the fact that the soil contamination is not a principal threat. I understand the use of containment for areas that are not a principal threat, but for these sites, the area of contamination is small, and removal might be less expensive and would be more effective in the long-term than deed restrictions. Therefore, the FS should be updated to include soil removal and off-site disposal (at a minimum) as a general response, and carry it through the screening and the detailed analysis.

Response: *At Site 06, no action and institutional control are the only general response actions identified for the site because existing soil quality does not pose a significant concern under the planned future commercial/industrial site use. Neither containment nor excavation/disposal are identified as general response actions at Site 06. Considering the proposed implementation of institutional controls at Site 05, where soils pose similar contaminant and risk levels, the use of a similar approach at Site 06 appears appropriate. At Site 06, one surface soil sample exhibited lead at a level exceeding residential guidance levels. The human health cancer risks based on exposures to surface soils under a future commercial/industrial site use scenario (which did not include a quantitative evaluation of risks due to lead) range from 3×10^{-6} (mean) to 5×10^{-6} (RME). If EPA and RIDEM consider these risks posed by other soil contaminants to be protective of human health under all site use scenarios (including residential), a soil removal/disposal option which considers removal of the lead-contaminated soil will be considered.*

3. The description of the alternatives, and the evaluation of the alternatives against the National Contingency Plan (NCP) evaluation criteria is very cursory and should be enhanced. The description of the alternatives should present a more complete picture of the Navy's remedial action. For example, where deed restrictions would be required, a figure showing the anticipated area where these restrictions would be instituted should be included; also, a discussion is lacking as to how long the remedial action will take to implement and complete.

Response: *Where deed restrictions are described, they are intended to address the areal extent of the site as defined within the RI/FS process. This will be clarified within the text. The time frames required to implement alternatives and meet remedial response objectives are generally discussed within the short-term effectiveness evaluation. These discussions will be re-evaluated to confirm that such time frames are discussed.*

Section 4.2.3, add onto the end of this section the following sentence: "The extent of deed restriction and fencing will cover the areal extent of the site as shown on figure 2-1."

4. The evaluation of the alternatives against the NCP criteria needs to present the baseline risks from the site, and how the implementation of the remedial action would reduce them, and what the residual risk would be.

Response: *Baseline risks are presented in Section 2 of the report. Discussions and calculations of residual risk based on preliminary cleanup goals will be incorporated within the Draft Final report, as appropriate.*

5. This Detailed Analysis of Alternatives Report has been written prior to completion of the response to comments on the draft RI. Therefore, any conclusions that have been based on the draft RI are preliminary, and it should be kept in mind that changes to this report may be required once the draft RI has been completed and approved. The points of primary concern that could have the greatest impact on the detailed analysis of alternatives and subsequent recommendation of a preferred remedy are:

   - Risks associated with the inhalation of volatile emissions by a worker in a trench (see Response to US EPA and RIDEM Comments on the Draft Remedial Investigation Report, March, 1994, Section 2, pg. 3)
   - Background concentrations require complete reassessment
   - Changes to the Ecological Risk Assessment (this may not significantly affect Site 06)

   Other issues addressed in the RI comments, although not specifically noted here, may also impact the detailed analysis of alternatives.

   The Navy should thoroughly review the comments on the draft RI, together with these comments in the Detailed Analysis of Alternatives Report, and incorporate any changes required as a result of both sets of comments.

Response: *The risks associated with inhalation of volatile emissions by a worker in a trench are included in the discussion of the risks associated with the future construction worker scenario and are presented in Table 2-4 of the Draft DAA. (Although the Draft Final RI had not been submitted at the time the Draft DAA was submitted, the risk calculations had been completed and were included in the Draft DAA). These risks do not contribute significantly to the overall pathways risk estimate.*

The revised background concentrations (which were include in the Sites 02 and 07 DAA Report) will be incorporated into the report and any associated text will be revised accordingly (see response to specific comment #6 below).

The majority of the Ecological Risk Assessment discussion presented in Section 2.9 remains accurate. However, in accordance with the conclusions of the Draft Final Ecological Risk Assessment (Section 7.2.4), the last paragraph of Section 2.9 will be revised to read as follows:

"Several of the lines of evidence summarized in the preceding paragraphs indicate some potential for risk in the Hall Creek Watershed. Other lines of evidence such as the functional analysis of the Hall Creek wetland provide information that may modify the potential for risk. The fundamental analysis indicated that the wetland pollutant reduction functions (i.e., sediment stabilization, sediment/toxicant retention, nutrient removal/transformation), production export, and aquatic and wildlife diversity/abundance functions of the wetland are the more important for the region. In addition, the benthic and wildlife observations in Hall Creek Watershed indicate a diverse and functioning ecosystem. Therefore, although the ecological risk assessment indicates some potential for risk in these areas due to COCs, other lines of evidence indicate that there is some uncertainty in this analysis."

Other comments on the Draft RI will be reviewed prior to preparing the Draft Final DAA and revisions to the RI will be reflected within the Draft Final DAA, as appropriate.

Specific Comments for Site 06

1. Page 2-4, Section 2.4: First Full Paragraph - The section needs to provide a more detailed description of the RIDEM classification of the ground water. The discussion should include why the ground water is classified as GB; explain the extent of the GB classification; and show a map depicting the region that is classified as GB. It is also unclear why the ground water classification was presented in this Ecological Setting section. This section also needs to describe the connection between the site and the Hall Creek Watershed.

Response: *A discussion of the ground-water quality classification is included in Section 1.4.2 Regional Hydrogeology of Volume I. The section entitled "Ecological Setting" will be eliminated and the information contained therein will be incorporated into Sections 2.3.2 (Site Hydrogeology) and 2.3.3 (Site Hydrology).*

2. Page 2-5, Section 2.5.2: Second Paragraph - TCL, TAL, and TCLP need to be spelled out.

Response: *The text will be revised as requested.*

The text shall read as follows:

TCL - Target Compound List
TAL - Target Analyte List
TCLP - Toxicity Characteristic Leachate Process

3. Page 2-6, Section 2.5.3: Fourth Paragraph - The discussion of background is very limited. This discussion needs to either be expanded to describe why the locations are considered background and where the background locations are, or a reference needs to be provided regarding where this information can be found.

Response: *A reference will be provided which directs the reader to the appropriate section of the Draft Final RI for more information on the background soil investigation.*

Section 2.5.3, last paragraph, second sentence will read: "Eighteen background surface soil samples were collected (section 9, background Surface Soil Investigation, of the Draft Final Remedial Investigation Report - Volume I (TRC, 1994)), across NCBC Davisville...."

4. Page 2-7, Section 2.6: All - This section is very difficult to follow because the figures do not show all the data for a given medium. The figures should be updated to show areas of

contamination and to present data for all sampling locations (a range of analytical results would be an improvement).

Response: *There are no figures associated with Section 2.6 and no figures are referenced within this section of text. The discussion as presented is a summary of information presented in the RI. A reference to the RI evaluation will be added to the text. Graphical presentation of all sampling results for all sampling locations is unnecessary and would be very difficult to present in a neat and easy-to-read manner. The information pertinent to conducting an FS, the contaminant levels and sample locations for contaminants detected above preliminary remediation goals, is presented in Section 3 and its associated figures.*

5. Page 2-13, Section 2.7: Third Paragraph - The text states that xylene is likely to persist longer than the other volatile contaminants of concern (COCs), but does not explain why. The text should be expanded to discuss why xylene would be more persistent.

Response: *The fate and transport discussion will be revised to reflect associated revisions incorporated within the Draft Final RI fate and transport discussions. Total xylenes were detected in subsurface soils only. Because they are less soluble than other VOCs with a lower tendency to partition from organic media into ground water, they would tend to be more persistent in the subsurface. This will be clarified within the associated discussion.*

6. Page 2-15, Section 2.7: First Paragraph - The COCs presented in this section do not agree with the COCs presented on page 2-10. This discrepancy should be corrected or explained.

Response: *A revised Table 2-3, incorporating the revised soil background ranges, is attached. Note that, as referenced in the text of Section 2.6, Table 2-3 summarizes only Phase II data with respect to background levels. In accordance with the revised soil background ranges, the following text changes have been made:*

Page 2-9, first paragraph will read as follows:

"The SVOCs detected in the surface soil samples collected during the Phase II RI were compared to the background samples collected throughout the NCBC facility (see Table 2-3). The SVOCs detected in the surface soils were detected at levels which exceed NCBC background ranges."

Page 2-9, fourth paragraph will read as follows:

"The 2-methylnaphthalene detected during the Phase II RI exceeded the NCBC background range, as shown in Table 2-3."

Page 2-10, seventh paragraph will read as follows:

"Sixteen inorganics were detected in Phase II surface soils at concentrations which exceeded NCBC background ranges: aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, iron, lead, magnesium, manganese, nickel, silver, thallium, zinc, and cyanide."

Page 2-10, last sentence and page 2-11, first sentence will read as follows:

"Six inorganic analytes, barium, calcium, magnesium, nickel, potassium, and thallium, were detected at concentrations above the NCBC background ranges. Four of six analytes, calcium, magnesium, nickel, and potassium, were detected in Phase II RI sample 06-MW05-03."

Page 2-14, first two sentences will read as follows:

"Inorganic analytes in Phase I and Phase II surface soil samples which were detected above site background levels in one or more samples include aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, silver, sodium, thallium, zinc, and cyanide. The inorganic analytes which were detected in one or more Phase I or Phase II subsurface soil samples at levels exceeding site background include beryllium, calcium, cobalt, magnesium, manganese, nickel, potassium, sodium, and thallium."

7. Page 2-17, Section 2.9: All - The sampling for PCB and pesticide contamination are mentioned for the first time in this section. This leaves the reader questioning what the source of the contamination is and where it is located. If Site 06 is the source of the PCB or pesticide contamination, it should be described in Section 2.7. If Site 06 is not the source, the relevance of this section is questionable.

Response: *The potential ecological risk discussed in Section 2.9 is based on surface water and sediment sampling conducted in Hall Creek, which will be described in more detail in the introductory information of this section. The relative sections of the Draft Final RI which provide more information on the surface water and sediment sampling will also be referenced. As discussed in Section 3.1.3, it is considered unlikely that Site 06 is the source of the PCB or pesticide contamination since neither PCBs nor pesticides have been detected in soils or ground water at Site 06. A reference to the unlikely relationship between contaminants at Site 06 and risks within the Hall Creek Watershed will be added to Section 2.9.*

8. Table 2-4 - Definitions of "–" and "NA" should be included.

Response: The table will be revised as requested.

The bottom of the table should have the following footnote: " NA - Not Applicable"

9. Figure 2-1 - The text mentions landmarks that are not shown on figure, such as the parking lot. Figure would also be clearer if the extent of Site 06 was shown with a box.

Response: The figure as provided is consistent with figures previously provided within the RI. The approximate extent of Site 06 will be indicated with a box. Existing site base maps will be searched; if the extent of the parking lot located to the west of the site can be delineated, it will be added to the site base map.

10. Page 3-1, Section 3.1.1: Last Paragraph - The text indicates that TSCA and the PCB Spill Cleanup Policy is an applicable or relevant and appropriate requirement (ARAR). Based on the fact that PCBs were not found at the site, it is unclear as to why TSCA and the PCB Spill Cleanup Policy is an ARAR.

Response: The discussion will be revised to indicate that TSCA and the PCB Spill Cleanup Policy are <u>potential</u> ARARs for soil contaminants but that, based on the absence of PCB contamination at Site 06, they are not ARARs for the site.

Section 3.1.1, Soil Contamination, second paragraph should read as follows: "As presented in table 3-1, TSCA and PCB spill cleanup policy are potential ARARs for soil contaminants, but that based on the absence of PCB contamination at site 06, they are not ARARs for the site. The State of Rhode Island Department of Emergency Management(RIDEM) define solid waste as....".

11. Page 3-9, Section 3.3: All - This section excludes the removal/disposal of the contaminated soil from the site. The exclusion of this general response does not seem justified, considering how small an area seems to be contaminated. The fact that the soil is not a principal threat should not eliminate the ability to remove the contamination, since the soil volume is so small. This section needs to be revised to include a calculation of the volume of contaminated soil, and to include, at a minimum, removal and off-site disposal as a general response.

In addition, the section should provide more detail on the extent of ground water contamination, such as a map depicting the area contaminated in excess of cleanup levels.

Response: *See response to General Comment #2 with respect to soil contamination.*

Ground water at Sites 6, 13 and 11 is designated as a separate operable unit and comments pertaining to ground water will be addressed under a separate cover.

12. Table 3-2 - The table should note what the shading indicates.

Response: *A footnote will be added indicating that shading indicates a detected exceedance of an associated regulatory standard or guideline..*

Footnote at the bottom of table 3-2 will read as follows: "Shading indicates a detected exceedance of an associated standard or guideline."

13. Table 3-4 - The maximum modeled unsaturated concentrations appear to be too high because, in several cases, they show that percentage level concentrations in the unsaturated zone would not result in ground water dissolved concentrations above acceptable criteria. For example, the value for 2-Methylnaphthalene indicates that a maximum concentration of 35 percent would be acceptable, however, it is hard to believe 35 percent of this compound in the soil would not elevate ground water concentrations above the acceptable criteria.

Response: *Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

14. Table 3-5 - The last line of the comment for Fencing should read, "...future access *after* base closure."

Response: *This text along with other references to the facility will be revised to reflect that NCBC Davisville has officially been closed.*

The last line in table 3-5 shall read as follows: "...future access after base closure."

General Response - Comments 15 - 17: A note will be added to Tables 3-5 through 3-8 referring the reader to Appendix D for more detail on the technology and process option screening process.

15. Table 3-6, First Page - The reason for screening out well points is unclear.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

16. Table 3-6, Second Page - The reason for screening out membrane microfiltration is unclear.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

17. Table 3-8 - The reason for selecting surface water discharge over ground water reinjection is unclear.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

18. Page 4-4, Section 4.2.2: First Paragraph - The last sentence should read, "...will not meet state chemical-specific TBCs for lead, but falls within the federal TBC lead range."

Response: The text will be revised as requested.

Section 4.2.2, first paragraph, last sentence shall read as follows: "...will not meet chemical specific TBCs for lead, but falls with in the federal TBC lead range.".

19. Page 4-4, Section 4.2.2: Third Paragraph - The description of long-term effectiveness and permanence indicates that the No Action alternative will be effective, due to the anticipated future commercial/industrial land use. This future use scenario, however, is only anticipated and does not exclude residential use. This should be indicated. In addition, the evaluation of this alternative should note that this alternative is not permanent.

Response: The text will be revised as requested.

Section 4.2.2, third paragraph, at the end will read as follows: "This future use scenario, however, is only anticipated and does not exclude residential use. The alternative is not permanent and may be discontinued upon a risk based scenario made by the associated regulatory agencies and the Navy."

20. Page 4-4, Section 4.2.2: Fourth Paragraph - The word *significant* should be removed from the second sentence in this paragraph because the No Action alternative does not offer any reductions in toxicity, mobility, or volume through treatment.

Response: *The text will be revised as requested.*

Section 4.2.2 should read as follows: "... the alternative offers no reduction in toxicity, mobility, or volume of contamination through treatment."

21. Page 4-5, Section 4.2.2: Third Paragraph - The cost paragraph indicates that 5-year reviews may not be required; however, there is no description as to how this determination will be made.

Response: *The words "if necessary" will be deleted. The only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of soils exceeding the residential guidance level for lead, no site use restrictions would be required.*

Section 4.2.2, third paragraph should read as follows: "The cost with the no-action alternative would be nominal associated with conducting 5-years reviews. The only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of the soils exceeding residential guidance level for lead, no site restrictions would be required."

22. Page 4-5, Section 4.2.3: First Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

Response: *The Limited Action alternative was developed to include a detailed evaluation of both fencing and deed restrictions but not necessarily requiring both to be implemented (hence the "and/or" wording). For example, implementation of deed restrictions without fencing will be protective of human health under the proposed future commercial/industrial site use. As noted in Section 5, deed restrictions without fencing is part of the recommended alternative for Site 06.*

Section 4.2.3, first paragraph, the first sentence would read as follows: "Alternative S-2 was developed as a limited action in which fencing would be placed around the perimeter of the site and deed restrictions would be implemented."

23. Page 4-5, Section 4.2.4: First Paragraph - The text indicates that fencing would restrict future land use. It is not clear how fencing limits the land use. This needs to be explained.

Response: *Section 4.2.4, first paragraph. The text "However, the fencing would limit future use of the Site under the commercial/industrial use scenario", will be deleted.*

24. Page 4-6, Section 4.2.4: Second Paragraph - The evaluation of the alternative against the TBC does not agree with the evaluation performed for No Action. The discrepancy should be corrected.

Response: *This alternative meets the TBC for lead by preventing the future development of the residential exposure pathway upon which the TBC is based.*

25. Page 4-6, Section 4.2.4: Third Paragraph - The evaluation of the alternative for long-term effectiveness indicates that a risk management evaluation would be performed to determine if 5-year reviews would be required. The risk management evaluation should be described in the description of the alternative.

Response: *Since this alternative involves site use restrictions which do not allow for unlimited future site use, the text will be revised to indicated that a 5-year review will be required. As described in the response to comment #21, the only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of soils exceeding the residential guidance level for lead, no site use restrictions would be required*

Section 4.2.4, third paragraph, last sentence should read as follows: "The only scenario under which a 5-year review would not be required is if the EPA, RIDEM, and the Navy made a risk management decision that, based on the apparent limited extent of the soils exceeding residential guidance level for lead, no site restrictions would be required."

26. Page 4-6, Section 4.2.4: Sixth Paragraph - The evaluation of this alternative for implementability should note the difficulty in obtaining and enforcing deed restrictions.

Response: *Based on the closure of NCBC, future use of Site 06 would most likely involve a transfer of property. As noted the deed restrictions would be incorporated into the property transfer process. Potential difficulties in enforcing deed restrictions will be mentioned within the text but, based on the industrial nature of the area in which Site 06 is located and the Reuse Plan's identification of the area for*

economic/industrial development, there does not appear to be a high probability for potential future residential development of the property.

27. Page 4-7, Section 4.3.1: Second Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

Response: *See response to comment #22*

Section 4.3.1, second paragraph, the first sentence shall read as follows: "... site use by limiting potential exposures to the site soils through fencing and deed restrictions."

28. Page 4-10, Section 4.4.1: First Paragraph - Change PPG to PRG in the third sentence.

Response: *The text will be revised as requested.*

Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

29. Page 4-10, Section 4.4.2: First Paragraph - The discussion of the protection of human health is confusing because the alternative does not limit the use of the ground water and, therefore, there is the potential to use the ground water as a drinking water source. This is not clear in the discussion as it is currently written.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

30. Page 4-11, Section 4.4.2: Third Paragraph - The discussion of the alternative's long-term effectiveness and permanence is misleading because there would be no limitation on the use of the ground water as a drinking water source. The text should be changed to note that the alternative would not be effective in limiting access.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

31. Page 4-11, Section 4.4.2: Fourth Paragraph - The word significant *should be removed from the second sentence in this paragraph because the No Action alternative does not offer any reductions in toxicity, mobility, or volume through treatment.*

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

32. Page 4-11, Section 4.4.3: First Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

33. Page 4-12, Section 4.4.3: First Paragraph - The description of the alternative should include a figure that shows the anticipated area over which the deed restrictions would apply, and the text should describe this area.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide *operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

34. Page 4-12, Section 4.4.3: Second Paragraph - The description of the monitoring needs to be enhanced to describe the Analytes to be monitored for, and the wells that will be monitored.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

35. Page 4-12, Section 4.4.4: First Paragraph - The relationship of the Hall Creek Watershed to the site is unclear.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

36. Sections 4.4.5 through 4.4.14 - The organization of these sections makes it difficult for the reader to understand what the remedial action would entail. The alternative would be easier to understand if Alternative 3A was Metal Precipitation, and included all the information for that remedial action, and Alternative 3B was Ion Exchange, and included all the information for that remedial action. Where information is repeated between Alternatives 3A and 3B, the description of Alternative 3B can reference Alternative 3A.

The evaluation of the alternatives against the NCP criteria could be done either together or individually.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

37. Sections 4.4.5 through 4.4.14 - The descriptions of the alternatives are very cursory and need to be expanded. Information, such as the following, needs to be included in these sections:

- Volume of ground water to be treated
- Contaminant concentration going to the treatment process
- Sludge volume
- Disposal location
- Regeneration frequency of ion exchange resins
- Type of regenerant
- Regenerant disposal method

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

38. Page 4-28, Section 4.6 - The use of the discount rate as the major factor that could affect the cost of implementing the remedial action is misleading. There are several other factors that could influence the cost of remediation, including the length of the remediation, the flow rate, the contaminant concentration, etc. These should be included in the sensitivity analysis.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

39. Figure 4-1 - The interceptor trenches appear to be upgradient of some of the contamination. The location of the trenches needs to be reviewed.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide *operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

40. Appendix C, Pg. C-2, *Equation (2)* - Please explain the adjustment factor of 0.63. Where was it obtained? Typically, K_d is calculated using K_{oc}. Why was this not done here? Equations have been developed relating K_d and K_{oc}, so it is not incorrect, but some

reference and an explanation should be provided. (Note: this comment also pertains to Site 13.)

Response: *Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

41. Appendix D - Screening should be uniformly performed on process option, not remedial technologies. In addition, the screening results of all process option should be shown.

Response: *Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

42. Appendix E - The costs, in a number of instances, are not presented with sufficient backup to allow the reader to determine how they were derived. For example, the ground water sampling cost of $300 per sampling event does not tell the reader how many samplers will be used, if there is upfront preparation, and how long the sampling event will take.

Response: *The intent of the cost estimates is to provide a cost estimate with an accuracy of +50 to -30 percent. Therefore, cost estimates are developed based on published cost data, vendor quotes, and previous project experience. Cost-specific references are coded within the cost tables and a reference list is provided which indicates the source of the cost data. The $300 per sample cost is based on TRC's experience in conducting sampling efforts and, to someone familiar with environmental assessment costs, the total annual cost of $2,100 to mobilize and collect 7 ground-water samples (which can be determined based on the information provided) would not be perceived as being unrealistic.*

43. Appendix E - The FS uses an interest rate of 5 percent; however, EPA guidance suggests the use of 7 percent. An explanation of why 5 percent was chosen should be provided.

Response: *EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (page 6-12) recommends the use of the 5% discount rate in conducting present with analyses. If there is new EPA guidance which indicates 7% should be used, please reference the source of that guidance.*

44. Appendix E - A description of how the escalation factors were calculated should be given.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.

45. Appendix E - Citations for some of the references presented in the tables are not given.

Response: Cost references will be reviewed to ensure that all references are listed in the attached reference table.

46. Appendix E - The use of the EPA document on treatment technologies for metal/cyanide-containing wastes does not seem appropriate without a description of how this document was used. The concern is that the document was prepared for waste streams from manufacturing operations and not dilute ground water streams. The use of this document should be reconsidered, and the costs need to be developed from another source, or an explanation needs to be given as to how the costs were used.

Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.